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5/11/02
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of
Charles E. Friesner

Serial No: 09/723,312

Filed: November 27, 2000

For: STRUCTURAL MEMBER

Art Unit: 3637

Examiner: Mr. Dennis Dorsey

Attorney Docket: 277.0017

RESPONSE AND AMENDMENT

RECEIVED

Commissioner of Patents and Trademarks
Washington, D.C. 20231

AUG 30 2002

GROUP 3.1.1

Sir:

This communication is filed in response to an office action that recites mailing on May 22, 2002.

Please amend the above-captioned application to recite priority claims under 35 USC Section 120, based on all of the prior applications listed on a Data Sheet that is being filed herewith, and as follows:

In the specification:

Page 4, insert the following paragraph before the heading "THE PRIOR ART"

In still another aspect, the invention is a method for producing a structural panel which comprises a layer of concrete and a layer of a thermoset, cellular urethane which is chemically and mechanically bonded to the concrete layer. The method consists essentially of placing a layer of a plastic concrete which contains cement, water and an aggregate, and is hardenable by hydration, in contact with a substantially planar mold surface so that it has an exposed surface which is generally opposed to the substantially planar mold surface, and causing a foamable isocyanate composition which is curable to a thermoset, cellular urethane to foam and cure to a thermoset condition while confined so that a portion of the composition is pressed against the surface of the concrete layer which is generally opposed to the substantially planar mold surface. In the foregoing description of one of the methods of the invention, the terms "placing" and "plastic" are

cont. Q1
used to have their usual meanings in the art (see, for example, *CONCRETE Basics*, a publication of the Portland Cement Association which is available on the internet at http://www.portcement.org/cb/concretebasics_concretebasics.asp).

Page 20, after line 32, insert, as a complete paragraph: -Fig. 34 is a perspective view showing a wall panel which is still another embodiment of the instant invention.-

Page 24, lines 30 and 31, delete “; it had an apparent density of about 20 gm per cc”.

Page 44, line 13, before “panels” insert -a panel, which is indicated generally at 160 in Fig. 34, has 19 gauge sheet metal skins 161 and 162, and a thermoset urethane core 163 chemically and mechanically bonded to the skins. The-

Line 13, after “panels” insert -160, which can be-

Page 49, please substitute the following abstract for that originally filed:

-ABSTRACT OF THE DISCLOSURE

A structural panel and a method for producing the panel are disclosed. The panel consists essentially of a body of a thermoset, cellular urethane which is substantially right rectangular parallelepipedal in shape, and has opposed major surfaces, and a metal sheet surface layer chemically and mechanically bonded to at least one of the opposed major surfaces of the urethane body. The structural panel is produced in a mold having the desired shape and containing the desired surface layer, by introducing a foamable composition which, by foaming and curing, produces a thermoset urethane foam and closing the mold so that the foamable composition expands to fill the mold and into intimate contact with the surface layer. As a consequence, after cure of the urethane to a thermoset condition, the surface layer is mechanically and chemically bonded thereto. A Dyligomer which is a particularly advantageous constituent of the foamable composition is also disclosed.-

In the claims:

Cancel claims 8, 10 and 11.

Amend claims 7 and 9 and add new claims 24-31 as written below.

7. (Amended) A [wall structure] structural panel which consists essentially of a body of a thermoset, cellular urethane, said body being substantially right rectangular parallelepipedal in shape, having opposed major surfaces, and a metal sheet surface layer chemically and mechanically bonded to at least one of the opposed major surfaces.

9. (Amended) A [wall structure] structural panel as claimed in claim [8] 7 which includes a metal sheet surface layer [of another material] chemically and mechanically bonded to both of the opposed major surfaces.

24. (New) A method for producing a structural panel which comprises a layer of concrete and a layer of a thermoset, cellular urethane which is chemically and mechanically bonded to the concrete layer, said method consisting essentially of placing a layer of a plastic concrete which contains cement, water and an aggregate, and is hardenable by hydration, in contact with a substantially planar mold surface so that it has an exposed surface which is generally opposed to the substantially planar mold surface, and causing a foamable isocyanate composition which is curable to a thermoset, cellular urethane to foam and cure to a thermoset condition while confined so that a portion of the composition is pressed against the surface of the concrete layer which is generally opposed to the substantially planar mold surface.

25. (New) A structural panel as claimed in claim 7 wherein said metal surface is contoured so that it forms first and second pluralities of parallel channels having substantially coplanar webs, the webs of said first and second pluralities of parallel channels being vertically offset from one another, each channel of said first plurality being adjacent a channel of said second plurality, and being open on one side of its web while each adjacent channel of said second plurality is open on the opposite side of its web, and a plurality of substantially parallel sidewalls, each of which has an edge which is structurally integral with an edge of one of the webs of said first plurality of channels and an opposed edge which is structurally integral with an edge of the web of an adjacent channel of said second plurality, strips of one of the major surfaces of said body of thermoset cellular urethane being chemically and mechanically bonded to the sides of the webs of said first plurality of channels opposite the integral sidewalls, and said body of thermoset cellular urethane having portions which extend into and fill, and are chemically and mechanically bonded to, each channel of said second plurality which is adjacent a channel of said first plurality that is chemically and mechanically bonded to a strip of the major surface of said body of thermoset cellular urethane.

26. (New) A structural panel produced by the method claimed in claim 24, which panel comprises a layer of concrete and a layer of a thermoset, cellular urethane which is chemically and mechanically bonded to the concrete layer.

27. (New) A structural panel as claimed in claim 25 which additionally includes a second metal surface which is contoured so that it forms first and second pluralities of parallel, second surface channels having substantially coplanar webs, the webs of said first and second pluralities of parallel channels being vertically offset from one another, each channel of said first plurality being adjacent a channel of said second plurality, and being open on one side of its web while each adjacent channel of said second plurality is open on the opposite side of its web, and a plurality of substantially parallel sidewalls, each of which has an edge which is structurally integral with an edge of one of the webs of said first plurality of channels and an opposed edge which is structurally integral with an edge of the web of an adjacent channel of said second plurality, wherein strips of the second of the major surfaces of said body of thermoset cellular urethane are chemically and mechanically bonded to the sides of the webs of said first plurality of second surface channels opposite the integral sidewalls, and said body of thermoset cellular urethane having portions which extend into and fill, and are chemically and mechanically bonded to, each channel of said second plurality of second surface channels which is adjacent a channel of said first plurality that is chemically and mechanically bonded to a strip of the major surface of said body of thermoset cellular urethane.

28. (New) A structural panel as claimed in claim 27 wherein the first and second channels of said second metal surface extend transversely of the first and second channels of said metal surface.

29. (New) A structural panel as claimed in claim 28 wherein the first and second channels of said second metal surface extend substantially at right angles to the first and second channels of said metal surface.

30. (New) A structural panel as claimed in claim 7 wherein said metal sheet surface layer is generally planar, but is contoured so that there are plural linear discontinuities extending thereacross and there is a pair of closely adjacent, generally parallel legs extending across said surface layer at each discontinuity, one edge of each of said legs being integral with said surface layer on one side of each discontinuity, and the opposed edges of the legs of each of said pairs being integral with one another, said legs extending into the thermoset, cellular urethane body, and the exterior surfaces of each of said pairs of legs being chemically and mechanically bonded to said thermoset urethane.